



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,773	12/04/2001	Stuart T. Linsky	22-0145	7966

7590 03/09/2005

Christopher P. Harris
Tarolli, Sundheim, Covell & Tummino LLP
526 Superior Avenue, Suite 1111
Cleveland,, OH 44114-1400

EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT	PAPER NUMBER
----------	--------------

2637

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,773

Applicant(s)

LINSKY ET AL.

Examiner

Qutub Ghulamali

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 24 is objected to because of the following informalities: Claim 24, line 1, recites "in claim 234". The "in claim 234" should be corrected to recite --in claim 23-- . Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
2. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 18 recites the limitation "said phase lock loop" in lines 11. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ 2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F. 2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F. 2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F. 2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F. 2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 2637

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130 (b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/005,049.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the application are clearly encompassed by claims of the copending application.

Regarding claim 1 in the instant application, the baseband samples are complex samples, whereas in the copending application claim 1, "are in a burst". The communication as disclosed in the instant application is a data communication system known to impress intelligent information to be conveyed onto a carrier for transmission by one of many different modulation techniques as designed. Therefore, in the copending application the data communication system can by design choice, work equally well. Given the facts, it would have been obvious to one skilled in the art at the time the invention was made to present the claim in an alternate way so as to enhance the data communication system.

Similarly, in the instant application the phase detector receives complex data samples and generates partial decoder values, whereas in the copending application the phase detector receives complex data samples. Since the phase detector in both instance can accept complex data and phase estimates, it would be obvious to one skilled in the art at the time the invention

Art Unit: 2637

was made to present the claim in an alternate way so that different phase differences can be obtained.

Regarding claims 2-9, the claimed subject matter in the instant application mirrors (verbatim) that of the copending application claims 2-9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 1-9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 10/005,063.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the application are clearly encompassed by claims of the copending application.

Regarding claim 1 in the instant application, it is shown that the inner block decoder generates partial decoder values. Whereas in the copending application the inner block decoder generate multiple times phase values. Since the decoder in the instant application can generate partial decoder values it can very easily generate multiple decode values as programmed. Therefore, it would be obvious to one skilled in the art at the time the invention was made to present the claim in an alternate way so that upon program, the decoder could generate partial decoder values.

Regarding claims 2-9, the claimed subject matter in the instant application mirrors (verbatim) that of the copending application claims 2-9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10-13, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caso et al (US Patent No. 6,236,687) in view of Khayrallah et al (US Patent 5,983,385).

Regarding claims 10 and 17, Caso discloses a demodulator unit (fig. 1, element 22), demodulate an input signal in a communications system comprising:
a phase lock loop (phase tracking loop), tracking the phase of QPSK modulated signal waveform and having an inner block decoder (maximum likelihood decoder) (fig. 3, element 318) configured to decode a set of vector pairs of the QPSK modulated signal waveform at a decode rate to generate associated codewords and phase estimates, wherein a group of data symbols consisting of the first data symbols of the modulated signal waveform are stored until a future waveform is received and then run backwards through the phase tracking loop concurrently with data from said future waveform (col. 3, lines 13-61). Caso however, is silent regarding an outer (second) decoder receive, codewords generated by the inner (first decoder). Khayrallah in a similar field of endeavor discloses:

Art Unit: 2637

an outer decoder (second decoder) which receives the associated codewords estimates selected by said selection circuit and corrects errors in the set of associated codewords generated by said inner block decoder (first decoder) and which utilizes and corrects only codewords associated with symbols after and including the group of data symbols consisting of the first data symbols of QPSK modulated signal waveform (col. 7, lines 20-42). It would have been obvious to one skilled in the art at the time the invention was made to use a second decoder to correct errors in the set of associated codewords as taught by Khayrallah in the circuit of Caso because it can provide improved error correcting capabilities with the modulated signal.

Regarding claim 11, Caso discloses the phase lock loop use biorthogonal codes e.g., Reed-Muller codes (col. 3, lines 13-16).

Regarding claim 12, Caso discloses Reed-Muller block decoder determines the phase error estimate based on the composite decoded codeword phase error relative to reference (col. 3, lines 13-18).

Regarding claim 13, Caso discloses a demodulator wherein said group of data symbols consisting of the first data symbols of the QPSK modulated signal waveform are stored in the demodulator (col. 3, lines 20-24).

Regarding claims 15 and 16, Caso discloses a demodulator wherein a ambiguity (error) is determined after the group of data symbols is run backwards (derotate) through the phase tracking loop (col. 3, lines 43-55; col. 4, lines 10-28).

Art Unit: 2637

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caso et al (US Patent No. 6,236,687) in view of Khayrallah et al (US Patent 5,983,385) as applied to claim 10 above, and further in view of Hassan et al (US Patent 5,968,198).

Regarding claim 14, Caso and Khayrallah in combination disclose substantially all limitations of claim 10. The combination of Caso and Khayrallah, however, is silent regarding outer block decoder comprise a Reed-Solomon decoder. In the same field of endeavor, Hassan discloses outer block decoder comprise a Reed-Solomon decoder (col. 8, lines 3-15). It would have been obvious to one skilled in the art at the time the invention was made to use Reed-Solomon decoder as taught by Hassan in the circuit of Caso and Khayrallah because a Reed-Solomon decoder can compensate for error burst created in data transmission.

Allowable Subject Matter

10. Claim 18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

O'shea et al (US Pub. 2003/0156672) discloses frame synchronization and detection.

Smith et al (US 2004/0105516) shows a digital data receiver synchronization having a plurality of phase lock loops.

Art Unit: 2637

Edison et al (US 2004/0042566) discloses symbol reliability determination comprising of received symbols.

Dent (US Patent 5,151,919) shows CDMA demodulation and modulation system optimally decode coded information.

Branlund et al (US 2003/0086366) discloses adaptive communications methods and network of codewords.

Hassan et al (US Patent 5,968,198) discloses decoder utilizing soft information output to minimize error rate.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014.

The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QG.

March 4, 2005.



JAY K. PATEL
SUPERVISORY PATENT EXAMINER